

## Precise non-contact temperature measurement from -50 °C to 1050 °C (-58 °F to 1922 °F)



### Features:

- One of the smallest infrared sensors worldwide with down to 6 ms response time
- Rugged sensing head for low target temperatures - usable up to 125 °C (257 °F) ambient temperature without cooling
- Two-piece design with easy accessible programming keys and LCD backlit display
- Built-in USB interface for simple sensor setup via mobile phone or PC
- Selectable analog outputs:  
0 / 4 – 20 mA, 0 – 5 / 10 V, thermocouple K
- Optional EtherNet/IP, Profinet, Ethernet TCP/IP / Modbus TCP, Modbus RTU, RS485, RS232 interface, EtherCAT, IO-Link or relay outputs (2 x optically isolated)
- Easy and flexible exchange of sensing heads

### General specifications

Environmental rating	IP 65 (NEMA-4)
Operating temperature range <sup>1)</sup>	-20 °C ... 125 °C (-4 °F ... 257 °F) (sensing head) -20 °C ... 85 °C (-4 °F ... 185 °F) (electronics)
Storage temperature	-40 °C ... 125 °C (-40 °F ... 257 °F) (sensing head) -40 °C ... 85 °C (-40 °F ... 185 °F) (electronics)
Operating air humidity range	10 – 95 %, non condensing
Vibration (sensor)	IEC 60068-2-6 (sinus shaped) IEC 60068-2-64 (broadband noise)
Shock (sensor)	IEC 60068-2-27 (25G and 50G)
Weight	40 g (1.41 oz) (sensing head) / 420 g (14.82 oz) (electronics)

### Electrical Specifications

Output / analog (2x)	0 / 4 – 20 mA, 0 – 5 / 10 V, thermocouple K, alarm
Output/alarm	24 V / 50 mA (open collector)
Relay outputs (optional)	2 x 60 V DC / 42 V AC <sub>RMS</sub> ; 0.4 A; optically isolated
Digital Interfaces	built-in USB-interface, Optional: EtherNet/IP, Profinet, EtherCAT, Ethernet TCP/IP / Modbus TCP, Modbus RTU, RS485, RS232 or relay outputs (2 x optically isolated)
Output impedances	mA max. 500 Ω (with 8 – 36 V DC) mV min. 100 kΩ load impedance thermocouple 20 Ω
I/O Pins (3x)	flexible programming as in- or output: external emissivity adjustment, ambient temperature compensation, uncommitted value, trigger (reset of hold functions), alarm output (open collector 24 V / 50 mA)
Cable length	1 m (3.3 ft) (standard), 3 m (9.84 ft), 8 m (26.25 ft), 15 m (49.21ft)
Power supply	8 - 30 V DC / 1.2W

### Measurement specifications

Measuring Temperature range (scalable via programming keys or software / App)	-50 °C ... 600 °C [-58 °F ... 1112 °F] (LT02) -50 °C ... 1050 °C [-58 °F ... 1922 °F] (LT15/ LT25)
Spectral range	8 – 14 μm
Optical resolution (90% energy)	25:1 15:1 2:1
Smallest spot size	0.6 mm @ 10 mm [0.02 in at 0.39 in] (LT25 + CF lens)
Measurement uncertainty <sup>2), 3), 4), 5), 7)</sup>	±1 % or ±1 °C [±1 % or ±1.8 °F]
Repeatability <sup>2), 3), 4), 5), 7)</sup>	±0.11 K (LT02) ±0.22 K (LT15) ±0.55 K (LT25)
Temperature resolution (display)	0.1 K
NETD (typically) <sup>4), 5), 6), 7)</sup>	40 mK (LT02) 75 mK (LT15) 180 mK (LT25)
Response time (90%)	30 ms (LT02) 9 ms (LT15) 6 ms (LT25)
Emissivity / Gain (adjustable via programming keys or software / App)	0.05 – 1.100
Transmissivity / Gain (adjustable via programming keys or software / App)	0.05 – 1.100
Signal processing (parameter adjustable via programming keys or software / App)	Peak hold, valley hold, average; extended hold functions with threshold and hysteresis
Software / App	Optris CompactPlus Connect / IR Mobile App

<sup>1)</sup> The LCD displays capacity may be limited at ambient temperatures below 0 °C (32 °F)

<sup>2)</sup> Whichever is greater

<sup>3)</sup> T<sub>obj</sub> > 0 °C (32 °F)

<sup>4)</sup> ε = 1

<sup>5)</sup> Response time = 100ms

<sup>6)</sup> T<sub>obj</sub> = 25 °C (77 °F)

<sup>7)</sup> at ambient temperature 23 ± 5 °C (73.4 ± 9 °F)

